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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,535	06/15/2006	Andrei V. Belikov	0032.0007US1	7647
29127	7590	07/08/2010		
HOUSTON ELISEEVA 420 BEDFORD ST SUITE 155 LEXINGTON, MA 02420			EXAMINER NELSON, MATTHEW M	
			ART UNIT 3732	PAPER NUMBER
			MAIL DATE 07/08/2010	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/596,535

**Applicant(s)**

BELIKOV ET AL.

**Examiner**

Matthew M. Nelson

**Art Unit**

3732

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 February 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 62-67, 75-85, 87 and 89-96 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 62-67, 75-85, 87 and 89-96 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB006)  
Paper No(s)/Mail Date 10/15/2009
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notes of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

1. Amendment filed on 2/8/2010 is acknowledged.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 91 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
4. Claim 91 recites the limitation "the compound" in line 2. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 62-66, 75-77, 79-83, 90-91, 94-96 are rejected under 35 U.S.C. 102(b) as being anticipated by Auge, II (US 2002/0022846).
7. Auge shows a method of hard tissue modification comprising forming a porous layer of the hard tissue, by using an acid for instance, ([0022]) and then selectively heating (end of [0047]) a porous layer of the hard tissue to a temperature higher than a

melting temperature of hard tissue but less than 2000 degrees Celsius to cause the porous layer to fuse (i.e. [0047], [0051]), wherein the heating is done by a pulsed laser (electromagnetic energy across the entire spectrum may be used; [0047], [0056]). The thickness of the porous layer is dependent on the bone size and area of fusion. With respect to claims 75, 80, 94, impregnating a porous layer of the hard tissue with particles that may have a fluidity temperature about the same as or higher than a melting temperature of the porous layer ([0049], [0051]; same materials as claimed are used and therefore would have respective melting temperatures). The particles may be inorganic, crystal, ceramic, glass, or their mixture ([0046], [0049]).

8. Claims 87, 89 are rejected under 35 U.S.C. 102(b) as being anticipated by Evans et al. (US 5,104,319).

9. Evans shows a method of hard tissue modification comprising filling the porous layer of hard tissue (tooth) with a fluidified material preheated above at least its fluidity temperature (col. 4, lines 8-14), wherein the fluidified material is glass, crystal, or ceramic, and letting the fluidified material cool and solidify in the porous layer. With respect to claim 89, the surface may first be impregnated by particles having a fluidity temperature higher than a melting temperature of the hard tissue and preheated material (col. 3, lines 1-15).

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 67, 78, 84-85, 92-93 are rejected under 35 U.S.C. 103(a) as being unpatentable over Auge.

12. Auge discloses the device as previously described above, but fails to show cooling the porous layer with a cooling fluid and the inorganic particles are Na<sub>2</sub>O-Al<sub>2</sub>O<sub>3</sub>-SiO<sub>2</sub>, Ca(PO<sub>3</sub>), CaF<sub>2</sub>, Ca<sub>10</sub>(PO<sub>4</sub>)<sub>6</sub>(OH)<sub>2</sub>, or Ca<sub>10</sub>(PO<sub>4</sub>)<sub>6</sub>F<sub>2</sub>.

13. It is well known in the art to use a cooling fluid to cool down materials when desired therefore it would have been obvious to one of ordinary skill in the art at the time of invention to modify Auge by including a cooling fluid such as water in order to effectively bring down the temperature of the fused site. It would have been obvious to one having ordinary skill in the art at the time of invention to have the inorganic particles be Na<sub>2</sub>O-Al<sub>2</sub>O<sub>3</sub>-SiO<sub>2</sub>, Ca(PO<sub>3</sub>), CaF<sub>2</sub>, Ca<sub>10</sub>(PO<sub>4</sub>)<sub>6</sub>(OH)<sub>2</sub>, Ca<sub>10</sub>(PO<sub>4</sub>)<sub>6</sub>F<sub>2</sub>, quartz, diamond, sapphire, topaz, amethyst, zircon, agate, granite, spinel, feldspar, tanzanite, or tourmaline and the glass be quartz or siall since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

***Response to Arguments***

14. Applicant's arguments with respect to claims 62-67, 75-85, 87, 89-96 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew M. Nelson whose telephone number is (571) 270-5898. The examiner can normally be reached on Monday-Friday 7:30am-5:00pm EDT.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cris Rodriguez can be reached on (571) 272-4964. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MMN/

/Cris L. Rodriguez/  
Supervisory Patent Examiner, Art Unit 3732